CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: March 20, 2006

TO: Natural Resources Board

FROM: Secretary Hassett

SUBJECT: State Mercury Rule Periodic Evaluation and Reconciliation Report

In June 2005, I provided Board Members with a rule agenda and memorandum outlining our schedule and plan for revising the state mercury rule that affects coal-fired electric utility boilers. Rule revisions are needed to incorporate provisions of the federal Clean Air Mercury Rule (CAMR), promulgated on May 18, 2005, within eighteen months of the federal rule effective date. On this same schedule, the Department needs to prepare an acceptable state plan for the United States Environmental Protection Agency (EPA) to implement the CAMR in Wisconsin.

While the process for revising the state mercury rule has commenced, the rule remains in effect. This memorandum includes two reports required in the state mercury rule, a reconciliation report and the January 1, 2006, rule evaluation report. Both reports are required to be submitted to the Natural Resources Board and the presiding officer of each house of the legislature for referral to the appropriate legislative standing committees.

Reconciliation Report

The state mercury rule that became effective October 1, 2004, requires Department staff to prepare a report in the event that a federal regulation is promulgated or a federal law is enacted that includes mercury reduction requirements for coal-fired electric utility boilers. This report should include a comparison of requirements and recommendations for rule revisions or other actions to reconcile requirements.

Control Technology Evaluation Report

The state mercury rule also requires periodic evaluation reports with the first report due January 1, 2006. Each of these reports shall include an evaluation of control technology developments and based on that evaluation, whether the limits in the state mercury rule are achievable. Recommendations for revisions to the state mercury rule may also be included in the evaluation report.

We are proceeding to revise the state mercury rule as required to meet certain provisions in the CAMR including the control standard and related administrative requirements. The reconciliation report identifies the flexibility states have under the CAMR, the provisions in the state mercury rule that are not affected by the requirement to true-up the state rule and the elements of an acceptable state plan. The control technology evaluation report summarizes the status of the national mercury control technology development program

Reconciliation of the State Mercury Rule with the CAMR

There are a number of differences between the Wisconsin and federal mercury regulations including level of required mercury emission reductions, reduction schedule and compliance determination requirements

that will need to be reconciled in the revisions to the state mercury rule. In addition, the CAMR allows each state to determine whether they will participate in a national banking and trading program to achieve its required mercury reductions and also allows each state to determine the allocation of the mercury budget set by EPA for the affected coal-fired electric utility boilers.

Under the CAMR, each state must submit a plan detailing controls that will be implemented to meet the reductions required. In the event that an acceptable plan is not developed, EPA would take the responsibility for implementation of this federal regulation in Wisconsin. Mercury reductions are required in two phases, the first in 2010 and the second beginning in 2018. Also under the CAMR, each state is provided a mercury budget for each reduction phase.

Wisconsin's mercury budget covers 48 coal-fired boilers operated by eight electric utility companies. The electric utilities affected are Alliant Energy, Dairyland Power Cooperative, Madison Gas and Electric Company, Manitowoc Public Utilities, MidAmerican Energy Company, WE Energies, Wisconsin Public Service Corporation and Xcel Energy. The annual mercury emission budgets EPA established are 1,780 pounds in 2010 that declines to 702 pounds in 2018. Respectively, these budgets represent a 19% and 62% reduction in mercury emissions from a baseline EPA calculated. These budgets were determined based upon a methodology that considers historical operating data from the coal-fired boilers affected by the CAMR. Significantly, the state budgets EPA determined are a permanent cap regardless of growth. Therefore, the state plan needs to include emissions from new units in our regulations to implement the CAMR.

Unlike the state mercury rule, the CAMR includes new sources, allows interstate trading of mercury allowances as an option for meeting reduction requirements, and covers more coal-fired boilers than the state rule. It also differs from the state mercury rule in that there are no credits for early reductions, no electric reliability waivers, no periodic review of requirements, no variance provisions, and reduction levels are based on emissions from the stack and not based on the mercury content of coal burned which is the basis of the state rule.

An acceptable state plan must include a description of the control measures that will meet the statewide mercury budget and fully adopted rules with the CAMR compliance dates and monitoring, reporting and recordkeeping provisions. Although states are not prohibited from having more stringent requirements than the CAMR, the state mercury rule requires the Department to adopt revisions that reflect the federal emission standards and administrative requirements. Under NR 446.029, upon adoption of a federal emission standard for coal-fired electric utility boilers the Department has 18 months to adopt a similar standard that may not be more restrictive in terms of emission limitations and has administrative requirements (e.g. and monitoring, reporting and recordkeeping) that are consistent with the federal requirements.

There are also provisions in the state mercury rule that are not affected by the commitment to adopt the CAMR requirements. This includes a 2018 mercury reduction goal of 80% for coal-fired utility boilers, requirement for the installation of mercury control technology for new sources not covered by a federal requirement, and methods and procedures for mercury emission determination for source categories that do not have federal procedures established.

In the revisions to the state mercury rule two significant issues need to be addressed; whether Wisconsin will participate in the national mercury trading program and how the state mercury budget will be

allocated to the affected electric utility companies in the state. Below are additional details concerning these issues.

State Participation in National Trading Program

EPA allows states the flexibility to determine how to achieve the required mercury reductions including whether to join a national trading program that allows interstate trading of mercury. Under this program electric utility companies must hold one allowance for each ounce of mercury emitted in a given year. Allowances can be readily transferred from one utility to another and may be banked for use in later years. Thus, achieving the second phase mercury reduction level may extend well beyond 2018 because of this ability to bank allowances.

If a state chooses to participate in the national trading program, EPA has an allowance tracking system to manage emission reporting and trading based upon the each participating states' methodology for allocation of allowances. EPA has also developed a model rule for their trading program for states to use as the basis for their state plans to implement the CAMR. If states do not participate in the national program they need to establish regulations that set emission limitations and compliance schedules to meet their mercury budget.

Allocation of Allowances

In EPA's model rule a states' mercury budget is distributed as emission allowances to the affected coal-fired electric utility boilers. States have the flexibility to determine the cost of allowance distribution (free or auction), frequency of allocations, basis for the distribution and the use and size of allowance set asides (e.g. new units, small units, energy efficiency and IGCC development). In EPA's model rule they provide a sample allocation methodology as an illustration of the choices a state may make. EPA's sample allocation methodology includes a new source set aside of 5%, a 94% allocation to existing coal-fired boilers based upon their historic baseline and an auction for the remaining 1%.

States may select a higher or lower set aside amount for new sources depending upon expected growth. After five years of operation a new unit would establish a baseline and would become an existing source and receive an allocation from the allowances for existing coal-fired boilers. Allowances allocated to existing units would decline with the entry of new units. Under the EPA example, retired units would continue to receive allowances as an incentive to promote retirement of less efficient units.

Control Technology Evaluation Report

The state mercury rule requires our four major electric utilities to reduce their baseline mercury emissions in two-steps. An initial reduction of 40% is required beginning January 1, 2010. A final reduction of 75% from baseline emissions begins January 1, 2015. A goal of 80% by 2018 is also established. These reduction levels were based on a technical analysis performed in 2003 that demonstrated that the application of the most promising mercury control technology for Wisconsin's major utilities, activated carbon injection (ACI), can achieve an overall 86% reduction from a baseline based on mercury content in the coal. ACI is the most widely studied of the mercury-specific control technologies for coal-fired power plants and continues to show the greatest potential to achieve moderate-to-high levels of mercury control. In this technology, carbon particles are injected into the exit gas flow, downstream of the boiler. The mercury attaches to the carbon particles and is removed in a traditional particle control device.

Nationally, many coal-fired power plants have existing mercury capture as a co-benefit of air pollution control technologies for other air contaminants. Approximately 75 tons of mercury is in coal used to generate electricity in the United States and about two-thirds of this mercury is emitted to the air, resulting in about 50 tons being emitted annually. One-third of this mercury (25 tons) is captured through existing air pollution controls such as fabric filters and electrostatic precipitators (for particulate matter), scrubbers (for sulfur dioxide) and selective catalytic reduction - SCR (for nitrogen oxides). This co-benefit is greater for bituminous coals than sub-bituminous coals. In Wisconsin, 80% of the coal used in coal-fired power plants is sub-bituminous.

Wisconsin's four major utilities have historically controlled mercury emissions by an average of 13% with existing air pollution controls, resulting in annual emissions of approximately 2,400 pounds, in the five-year period from 1997 through 2001. It is expected that by 2008, based on anticipated equipment and operational changes, average mercury control will increase to approximately 19% with annual emissions of approximately 2,260 pounds from the four utilities. Requirements in the federal Clean Air Interstate Rule to achieve additional sulfur dioxide and nitrogen oxide reductions at coal-fired power plants will also improve mercury control in Wisconsin. However, to achieve significant mercury reductions dedicated mercury controls are required.

The United States Department of Energy's National Energy Technology Laboratory (NETL) has been conducting a mercury control technology program that has established a goal of having technologies ready for commercial demonstration by 2010 that can achieve 90% mercury control at a cost of $35,000 per pound. In their October 2005 status report on the results of their field testing program DOE reported the following:

- Significant progress has been made in developing effective mercury control technology over the past several years particularly for low-rank coals (i.e. lignite and sub-bituminous).
- Activated carbon injection and injection of other materials and oxidation (i.e. catalyst, chemical additives) are the most promising mercury control technologies.
- Estimated cost of mercury control on a $ per pound removed basis have been reduced.
- By 2012 – 2015 broad commercial availability of mercury control technologies is projected to occur.

Currently the NETL has one project in commercial demonstration. That project is being conducted at WE Energies Presque Isle Generating Station in Marquette, Michigan. This project has important implications for mercury control at coal-fired electric utility boilers in Wisconsin because Presque Isle uses sub-bituminous coal. Initiated in 2004 this five year project and involves the application of TOXECON a control system developed by the Electric Power Research Institute (EPRI). In this control system activated carbon and other materials are injected into a fabric filter downstream of the existing particulate matter control device. When completed in 2009 the goal is to demonstrate a 90% reduction of mercury emissions test the effectiveness of a variety of injected materials at controlling other air pollutants in addition to mercury and achieve improved collection of particulate matter.

Recently two construction permits have been issued in Wisconsin for coal-fired electric utility boilers that establish mercury emission limitations. At Wisconsin Public Service Corporation's Weston Power Plant in Rothschild a 500 MW boiler burning sub-bituminous coal must achieve 83% mercury control. The second permit requires 90% mercury control. It affects WE Energies Elm Road Generating Station in Oak Creek which includes the construction of two 615 MW boilers burning bituminous coal. It is

important to note that air pollutants can be more effectively controlled from new sources as compared to existing sources.

Challenges to the Clean Air Mercury Rule

Wisconsin is one of fifteen states that is party to a lawsuit challenging the cap and trade approach and other provisions in the CAMR. These same states, in a separate action, have also challenged EPA's decision not to regulate mercury emissions from coal-fired electric utility boilers under the hazardous air pollutant provisions (Section 112) of the Clean Air Act. Instead, EPA developed the CAMR under provisions that allows a more flexible compliance schedule and approach than Section 112 allows. EPA has also recently initiated a formal reconsideration of the CAMR including many of the issues identified in the legal action. Public comment is currently being accepted for the issues that EPA will reconsider. The outcome of the lawsuit and EPA's reconsideration may affect this rule revision however, since their resolution is uncertain it is prudent to proceed and revise the state mercury rule.

EPA's Reconsideration of the Clean Air Mercury Rule

On October 28, 2005, EPA granted petitions from several states, tribes, industry and environmental groups to reconsider certain provisions in the CAMR and EPA's decision not to regulate mercury as a hazardous air pollutant under the federal Clean Air Act. This review included opportunity for public comment and a public hearing. The issues EPA would reconsider were limited and included some of their most controversial decisions including the use of a cap and trade approach to obtain mercury emission reductions. The comment period ended on December 19, 2005, and no decision on the issues included in the reconsideration have been made.

Proposed Schedule for Revising the State Mercury Rule

Public informational meetings were held at three locations throughout the state in November and December 2005 to outline the issues that need to be addressed in revisions to the state mercury rule. The purpose of the meetings was to solicit citizen and stakeholder recommendations on the issues that need to be addressed. In advance of developing rule revisions, the public was given an opportunity to comment specifically on whether Wisconsin should participate in the national bank and trade program and how the state should allocate mercury allowances. Comments were due by December 16, 2005. In order to provide a timely state plan to EPA by November 2006, draft rules will be prepared and presented for public hearing authorization in 2006.